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Dictyosporium amoenum sp. nov. from Chapada Diamantina, Bahia, Brazil

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Abstract — *Dictyosporium amoenum*, a new asexual fungus collected on leaves of *Calophyllum brasiliense* in the Brazilian semiarid Caatinga region, is described and illustrated. It is distinguished by digitate complanate brown conidia composed of four parallel compact rows of cells, each row with a globose hyaline mucous apical appendage. Conidial illustrations and a table comparing all *Dictyosporium* species are provided.

Key words — conidial fungi, leaf litter, taxonomy

Introduction

During several mycological surveys of conidial fungi on decaying leaves of *Calophyllum brasiliense* in the Chapada Diamantina, Bahia, Brazil, a conspicuous fungus was collected that is clearly related to *Dictyosporium* Corda, introduced by Corda (1836) with *D. elegans* Corda as the type species. The genus comprises 47 accepted species distinguished by conidiomata that are sporodochial, scattered, compact pulvinate, and olivaceous to dark brown. Conidiophores are inconspicuous and the conidiogenous cells are monoblastic, discrete, cylindrical, doliiform or inflated, and determinate. Conidial secession is rhexolytic. The conidia are solitary, digitate, complanate to complex subcylindrical, multiseptate and comprising several rows of cells that are brown, pale brown or yellowish brown, and sometimes with mucilaginous,

clavate, globose, filiform to tubular-capitate, hyaline appendages or tunica at the apex of or (rarely) lateral to some or all rows of cells.

Materials & methods

Samples of leaves of *C. brasiliense* were placed in paper bags, taken to the laboratory, and treated according to Castañeda-Ruiz (2005). Mounts were prepared in PVL (polyvinyl alcohol and lactic acid) and measurements were taken at ×1000. Micrographs were obtained with an Olympus microscope (model BX51) equipped with bright field and Nomarski interference optics. The holotype is deposited in the Herbarium of Universidade Estadual de Feira de Santana, Bahia, Brazil (HUEFS).

Taxonomy

Dictyosporium amoenum C.R. Silva, Gusmão & R.F. Castañeda, **sp. nov.** Fig. 1

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Differs from all other *Dictyosporium* spp. by its conidia comprising four vertical rows of cells, each row with a globose mucilaginous hyaline apical appendage.

Type: Brazil, Bahia State, Piatã, Chapada Diamantina, Serra da Tromba, 13°05′S 41°51′W, alt. 1263 m, on decaying leaves of *Calophyllum brasiliense* Cambess. (*Calophyllaceae*), 31.VII.2014, coll. C.R. Silva (**Holotype**, HUEFS 211336).

Etymology: Latin, *amoenus*, meaning pleasant, delightful, agreeable.

Conidiomata on the natural substrate sporodochial, pulvinate, scattered, mucilaginous, pale brown. Conidiophores inconspicuous. Conidiogenous cells monoblastic, cylindrical, discrete determinate. Conidia solitary, digitate, complanate, 20–30 × 12.5–15 µm, smooth, brown, composed of four rows of cells compacted together, parallel, 5–7-septate, slightly constricted at septa, smooth, brown, all with a globose, mucilaginous, hyaline apical appendage, 10–17.5 µm wide

Note: Among 47 described *Dictyosporium* species, only seventeen have been recorded with conidial appendages: *D. alatum* Emden, *D. aquaticum* Abdel-Aziz, *D. bulbosum* Tzean & J.L. Chen, *D. canisporum* L. Cai & K.D. Hyde, *D. digitatum* J.L. Chen et al., *D. freycinetiae* McKenzie, *D. gauntii* Bhat & B. Sutton, *D. hughesii* McKenzie, *D. inflatum* (Matsush.) K.L. Pang et al., *D. manglietiae* Kodsueb & McKenzie, *D. musae* Photita, *D. nigroapice* Goh et al., *D. strelitziae* Crous & A.R. Wood, *D. tetraploides* L. Cai & K.D. Hyde, *D. tetraseriale* Goh et al., *D. thailandicum* M.J. D'souza et al., and *D. zhejiangense* Wongs. et al. All these taxa differ from *D. amoenum* in the number of rows of cells and in the number, shape, and size of apical appendages on their conidia. (Table 1, Figs 2–4; data were obtained and conidial drawings adapted from Arambarri et al. 2001, Cai & Hyde 2007, Cai et al. 2003a,b; Castañeda-Ruiz et al. 1997; Crous et al. 2009; Crous et al. 2011, Goh et al. 1999; Hu et al. 2010,

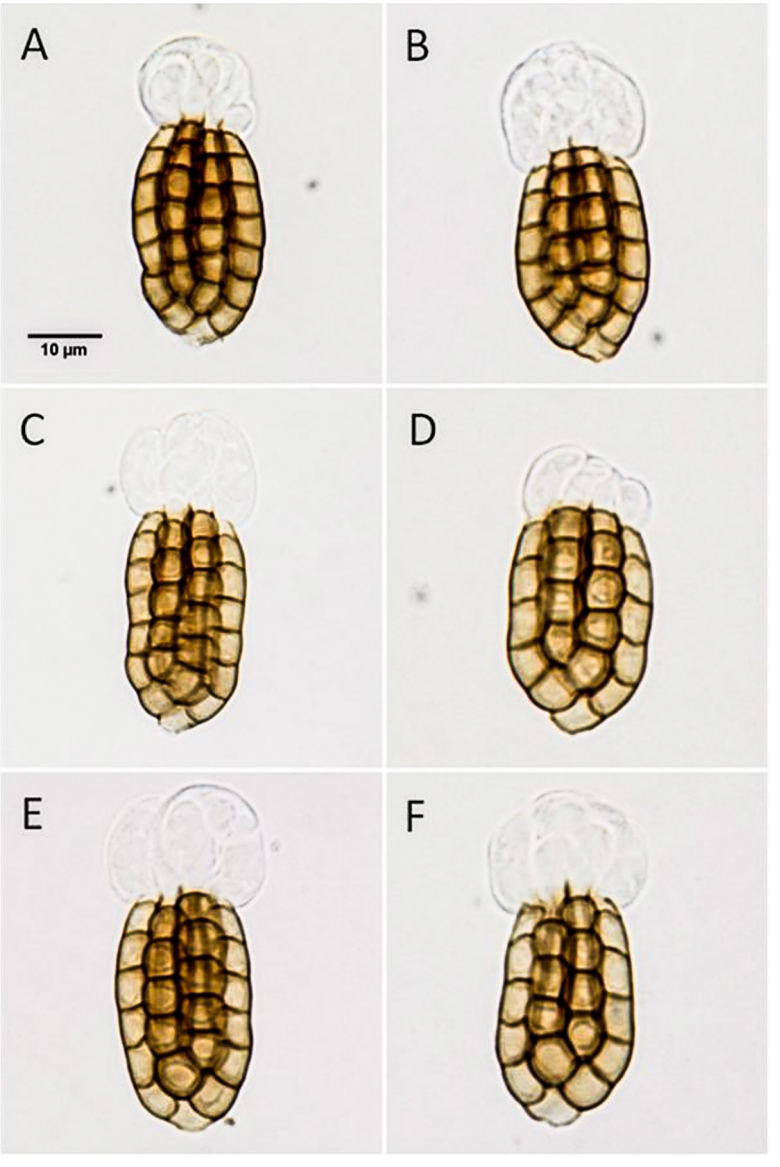

Fig. 1. *Dictyosporium amoenum* (ex HUEFS 211336). Conidia.

Liu et al. 2015; Kirschner et al. 2013; Kodsueb et al. 2006; McKenzie 2008, 2010; and Photita et al. 2002, Whitton et al. 2012, Wongsawas et al. 2009, Zhang 2009, and Zhao & Zhang 2003).

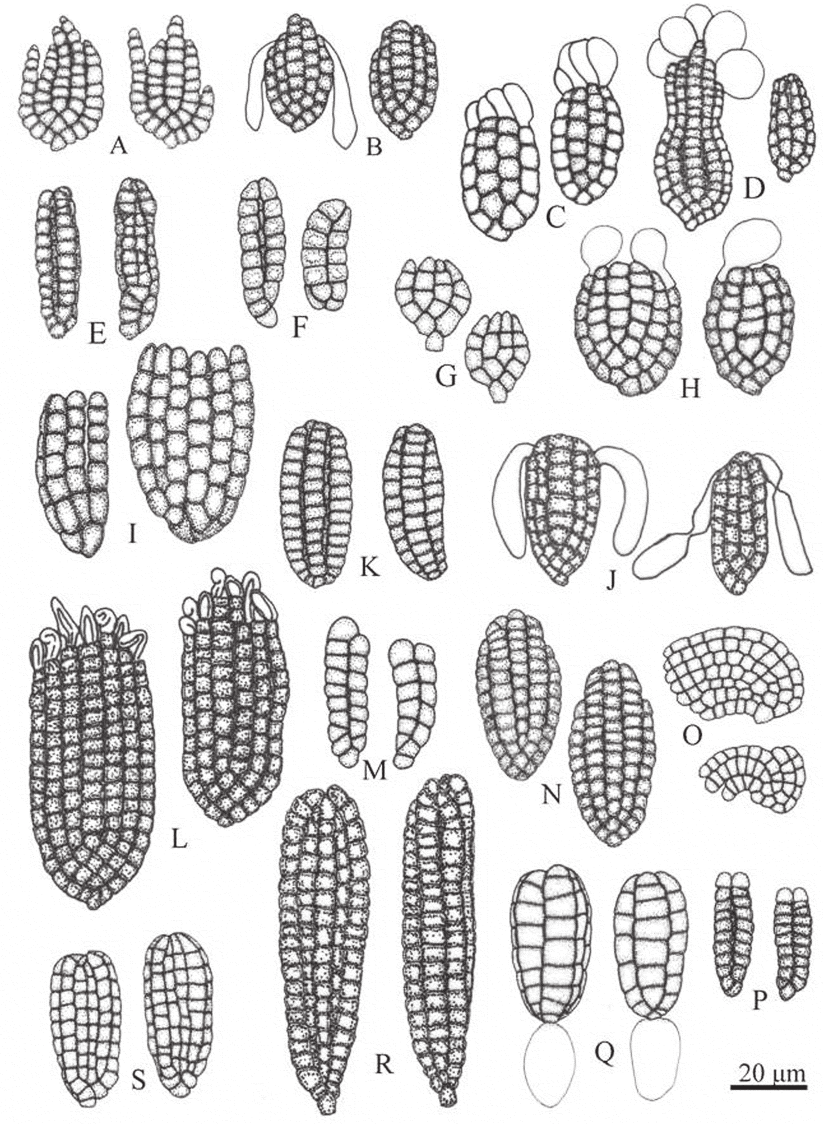

Fig. 2. Conidia of *Dictyosporium* species: **A**. *D. acroinflatum* (Whitton et al. 2012); **B**. *D. alatum* (Goh et al. 1999); **C**. *D. amoenum* (this paper); **D**. *D. aquaticum* (Liu et al. 2015); **E**. *D. australiense* (Goh et al. 1999); **F**. *D. biseriale* (Hu et al. 2010); **G**. *D. brahmaswaroopii* (Goh et al. 1999); **H**. *D. bulbosum* (Castañeda-Ruiz et al. 1997); **I**. *D. campaniforme* (Goh et al. 1999); **J**. *D. canisporum* (Cai et al. 2003a); **K**. *D. cocophilum* (Goh et al. 1999); **L**. *D. digitatum* (Goh et al. 1999); **M**. *D. dkagarwalii* (Manoharachary et al. 2007); **N**. *D. elegans* (Goh et al. 1999); **O**. *D. foliicola* (Goh et al. 1999); **P**. *D. freycinetiae* (McKenzie 2008); **Q**. *D. gauntii* (Goh et al. 1999); **R**. *D. giganticum* (Goh et al. 1999); **S**. *D. heptasporum* (Goh et al. 1999).

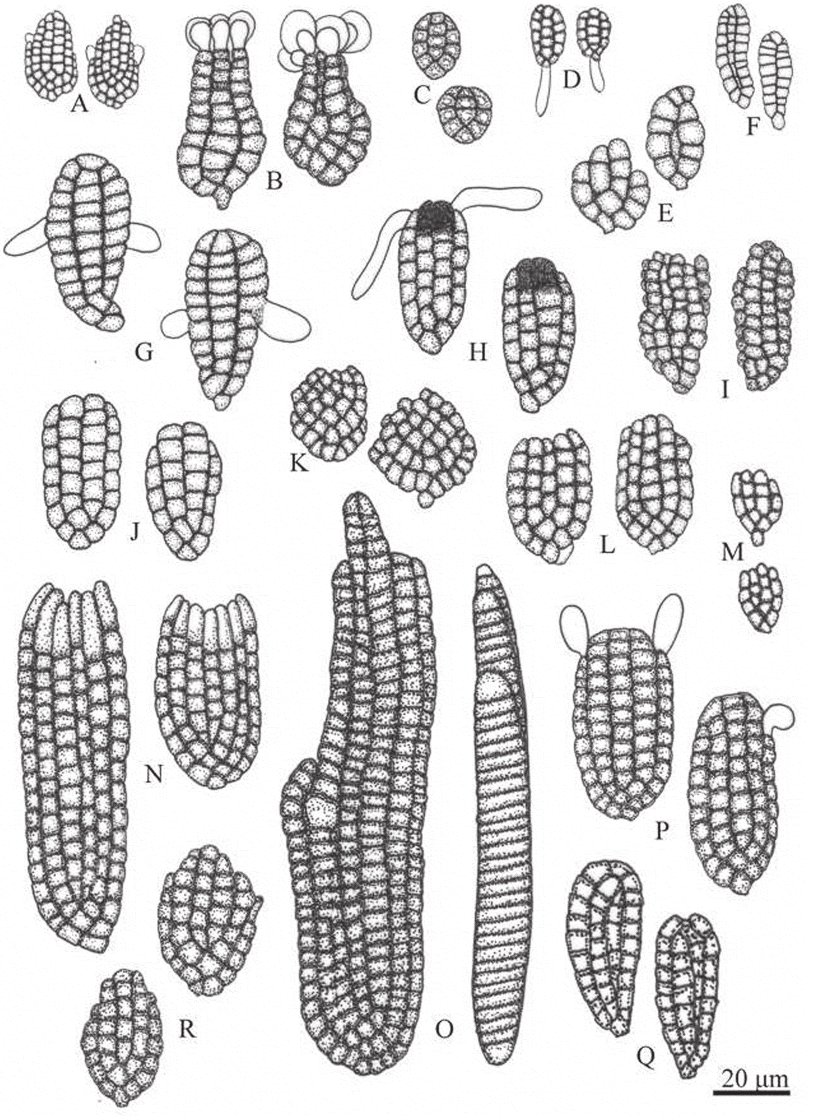

Fig. 3. Conidia of *Dictyosporium* species: **A**. *D. hughesii* (McKenzie 2010); **B**. *D. inflatum* (Kirschner et al. 2013); **C**. *D. lakefuxianense* (Cai et al. 2003b); **D**. *D. manglietiae* (Kodsueb et al. 2006); **E**. *D. meiosporum* (Liu et al. 2015); **F**. *D. micronesiacum* (Goh et al. 1999); **G**. *D. musae* (Photita et al. 2002); **H**. *D. nigroapice* (Goh et al. 1999); **I**. *D. oblongum* (Goh et al. 1999); **J**. *D. pandani* (Whitton et al. 2012); **K**. *D. polystichum* (Goh et al. 1999); **L**. *D. rhopalostylidis* (McKenzie 2010); **M**. *D. schizostachyfolium* (Goh et al. 1999); **N**. *D. sinensis* (Zhang 2009); **O**. *D. stellatum* (Crous et al 2011); **P**. *D. strelitziae* (Crous et al 2009); **Q**. *D. subramanianii* (Goh et al. 1999); **R** *D. taishanense* (Zhao & Zhang 2003).

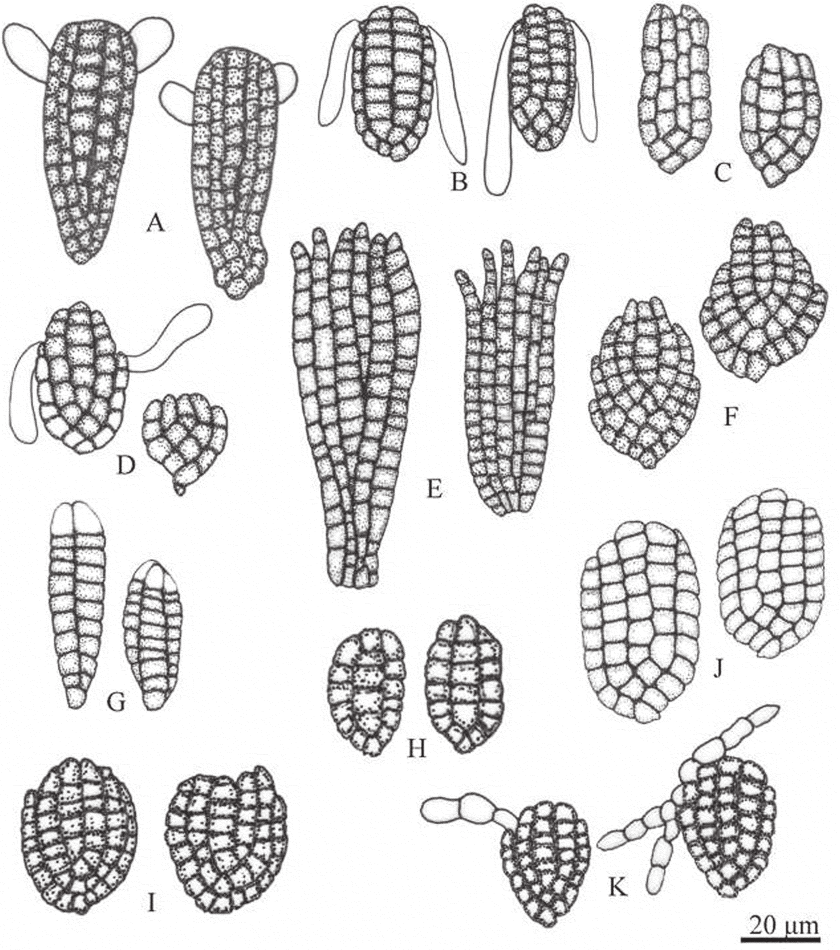

Fig. 4. Conidia of *Dictyosporium* species: **A**. *D. tetraploides* (Cai et al. 2003a); **B**. *D. tetraseriale* (Goh et al. 1999); **C**. *D. tetrasporum* (Cai & Hyde 2007); **D**. *D. thailandicum* (Liu et al. 2015); **E**. *D. tnlakhanpalii* (Manoharachary et al. 2007); **F**. *D. toruloides* (Goh et al. 1999); **G**. *D. triramosum* (Arambarri et al. 2001); **H**. *D. triseriale* (Goh et al. 1999); **I**. *D. yunnanense* (Cai et al. 2003b); **J**. *D. zeylanicum* (Goh et al. 1999); **K**. *D. zhejiangense* (Wongsawas et al. 2009).

Table 1. Comparison of conidia in *Dictyosporium* species

Species	Conidial size (μm)	No. of rows	Reference
D. amoenum	20–30 × 12–15	4	this paper
D. acroinflatum	28–52 × 23–35	4–8	Whitton et al. (2012)
D. alatum	26–32 × 15–25	5	Goh et al. (1999)
D. aquaticum	60–85 × 20–30	5–6	Liu et al. (2015)
D. australiense	36–43 × 11–12	3	Goh et al. (1999)
D. biseriale	22–30 × 9–10	2	Hu et al. (2010)
D. brahmaswaroopii	17–24 × 12.5–19	3–5	Goh et al. (1999)
D. bulbosum	27–46 × 11–30	5(–6)	Castañeda-Ruiz et al. (1997)
D. campaniforme	22–40 × 20–30	4–8	Goh et al. (1999)
D. canisporum	27–47 × 20–25	4–5	Cai et al. (2003a)
D. cocophilum	53–76 × 19–22	7	Goh et al. (1999)
D. digitatum	47–77 × 22–39	5–7	Goh et al. (1999)
D. dkagarwalii	30–40 × 9.5–11.5	2–3	Manoharachary et al. (2007)
D. elegans	40–80 × 24–31	5	Goh et al. (1999)
D. foliicola	34–56 × 20–38	5–7	Goh et al. (1999)
D. freycinetiae	27–40 × 5–6	3	McKenzie (2008)
D. gauntii	40–50 × 18–25	4–6	Goh et al. (1999)
D. giganticum	105–121 × 25–32	7	Goh et al. (1999)
D. heptasporum	50–80 × 20–30	7	Goh et al. (1999)
D. hughesii	33–50 × 23–32	7	McKenzie (2010)
D. inflatum	20–50×5–8(–10)	2–5	Kirschner et al. (2013)
D. lakefuxianense	15–22× 10–16.5	3	Cai et al. (2003b)
D. manglietiae	22–28 × 12.5–18	3	Kodsueb et al. (2006)
D. meiosporum	17–28 × 6–8.5	3–4	Liu et al. (2015)
D. micronesiacum	20–30 × 10–12	3–5	Goh et al. (1999)
D. musae	45–65 × 20–27	7	Photita et al. (2002)
D. nigroapice	28–41 × 15–20	4	Goh et al. (1999)
D. oblongum	30–50 × 12–30	3–6	Goh et al. (1999)
D. pandani	22–48 × 14–28	4–5	Whitton et al. (2012)
D. polystichum	26–34 × 23–34	(5–)7–9	Goh et al. (1999)
D. rhopalostylidis	28–48 × 20–29	5–6	McKenzie (2010)
D. schizostachyfolium	15–17 × 11–12	4	Goh et al. (1999)
D. sinense	50–130 × 20–35	4–7	Zhang (2009)
D. stellatum	50–175 × 27.5–52	5–7	Crous et al (2011)
D. strelitziae	30–55 × 20–23	4–6	Crous et al (2009)
D. subramanianii	33–42 × 16–21	3–7	Goh et al. (1999)
D. taishanense	27–43 × 15–30	(3–)5(–7)	Zhao & Zhang (2003)
D. tetraploides	52–72 × 18–26.5	5	Cai et al. (2003a)
D. tetraseriale	24–40 × 14–20	4	Goh et al. (1999)

Table 1, concluded on p. 1132

Table 1, concluded

Species	Conidial size (µm)	No. of rows	Reference
D. tetrasporum	23.5–40 × 16-21.5	4	Cai & Hyde (2007)
D. thailandicum	15–35 × 14.5-21	5	Liu et al. (2015)
D. tnlakhanpalii	80–120 × 25-36	(4–)6(–8)	Manoharachary et al. (2007)
D. toruloides	38–56 × 25-32	6–8	Goh et al. (1999)
D. triramosum	40–60 × 10-13.5	(2–)3	Arambarri et al. (2001)
D. triseriale	26–32 × 16-18	3	Goh et al. (1999)
D. yunnanense	25–45 × 22-38	(5–)6(–7)	Cai et al. (2003b)
D. zeylanicum	26–40×13-25	5	Goh et al. (1999)
D. zhejiangense	25–35 × 17–24	(4–)5	Wongsawas et al. (2009)

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